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The Content and Dimensionality of Communication Styles

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A multiphase lexical study was conducted to uncover the key dimensions of communication styles. In the first two phases, adjectives and verbs were selected on the basis of their ability to describe communication styles. In the third phase, a study was conducted using 441 respondents who provided self-ratings on 744 adjectives and 837 verbs. Adjectives and verbs were submitted to principal components analysis, followed by orthogonal Procrustes rotation to establish within-sample replicability, which provided evidence of four to seven main communication style dimensions. The seven communication style dimensions form the acronym PRESENT, for preciseness, reflectiveness, expressiveness, supportiveness, emotionality, niceness, and threateningness. As expected, scales based on the seven dimensions were meaningfully related to the interpersonal but not the intrapersonal scales from the Communication Style Scale. The results are discussed in light of existing communication style scales, the interpersonal circumplex, and personality structure.

Keywords: *communication; interpersonal communication; communication styles; factor structure; personality; language; adjectives; verbs*

Scholars interested in communication styles may face a daunting task when studying their subject. They have to choose from a multitude of instruments developed to measure general communication styles (Burgoon & Hale, 1987; Gudykunst et al., 1996; Norton, 1983) or contextual communication styles in, for instance, married or dating couples (Christensen, 1988; Noller & White, 1990), parent-child interactions (Hawes, 1996; Ritchie & Fitzpatrick, 1990), doctor- or nurse-patient counseling (Kettunen, Poskiparta, & Liimatainen, 2000; Yedidia et al., 2003), sales talks (Castleberry & Shepherd, 1993; Notarantonio & Cohen, 1990), police interrogation (Myklebust & Alison, 2000), job interviews (Bolino & Turnley, 1999), leadership (Johnson & Bechler, 1998; Luthans & Larsen, 1986), conflict management (Goldstein, 1999), and intercultural settings (Holtgraves, 1997; Sanchez-Burks et al., 2003). The current state of communication styles research is comparable with that in

personality research before the advent of the so-called Big Five personality factors (Digman, 1990; Goldberg, 1990) or Five-Factor Model (McCrae & Costa, 1987), which transformed research by creating consensus about the nature and number of personality dimensions.[2] Communication scholars have lamented the lack of integration in communication style studies (McCroskey, Daly, Martin, & Beatty, 1998). Daly and Bippus (1998), for instance, questioned whether "communication scholars [might] discover an integrative framework for the panoply of variables currently studied" (p. 4), and Beatty (1998) stated that "studies designed to reduce the overall number of measures to the basic communicator traits should be given high priority" (p. 312). In this study, we heed the call of these communication scholars by using a similar approach to the one that led to the Big Five personality dimensions in personality research. Consequently, the goal of this study is to explore, using a lexical approach, the dimensional structure of the words people use to describe people's communication styles.

We define communication style as *the characteristic way a person sends verbal, paraverbal, and nonverbal signals in social interactions denoting (a) who he or she is or wants to (appear to) be, (b) how he or she tends to relate to people with whom he or she interacts, and (c) in what way his or her messages should usually be interpreted*. The definition focuses explicitly on interpersonal communication behaviors; it excludes intrapersonal communication behaviors, such as purely cognitive interpretations of other people's utterances or internal affective states as a reaction to these utterances. For example, it excludes communication style scales from Gudykunst et al. (1996), such as Inferring Meaning, which contains items reflecting cognitive-affective interpretations of another's thoughts and affects, and Use of Feelings, which contains items reflecting the extent to which a person relies on feelings to guide his or her behaviors. In addition, the definition is more encompassing than an often quoted definition for communication styles[3] that refers to "the way one verbally, nonverbally, and paraverbally interacts to signal how literal meaning should be taken, interpreted, filtered, or understood" (Norton, 1983, pp. 19, 58). We believe Norton's (1983) definition to be too narrowly focused on the interpretation of a message, because people often tend to communicate more than just signals conveying an interpretative frame vis-à-vis the content of a message. In fact, some of the items of Norton's (1978, 1983) Communicator Style Measure (CSM), such as "Very often I insist that other people document or present some kind of proof for what they are arguing," indicate something not only about how a message should be taken (i.e., "insisting") but also about the identity a person wants to convey (thorough) and the kind of interaction he or she prefers (dominant).

Well-known instruments to measure general communication styles include Norton's (1978, 1983) CSM and Burgoon and Hale's (1987) Relational Communication Scale (RCS) (for a review, see Rubin, Palmgreen, & Sypher, 1994). Factor analyses of the CSM and the RCS have revealed two main factors, Friendliness and Dominance in the CSM (Hansford & Hattie, 1987; Sorenson &

Savage, 1989) and Affiliation and Dominance in the RCS (Dillard, Solomon, & Palmer, 1999). Gudykunst et al. (1996) created the 96-item Communication Style Scale (CSS)[4] from existing communication style instruments and wrote 62 additional items on the basis of Hall's (1976) and Gudykunst and Ting-Toomey's (1988) conceptualization of low- and high-context communication. Factor analysis of the 158 items resulted in 80 items' loading on eight factors: Inferring Meaning, Indirect Communication, Interpersonal Sensitivity, Dramatic Communication, Use of Feelings, Openness, Preciseness, and Positive Perception of Silence. By combining various instruments, Gudykunst et al. ensured a broader content of their communication style instrument. However, as noted above, three of the eight scales—Inferring Meaning, Use of Feelings, and Positive Perception of Silence—seem to refer to cognitions or affects with respect to communication instead of to communication behaviors, and thus another goal of this study is to check to what extent the communication styles represented in the CSS are present in the lexical communication dimensions to be uncovered in this study.

The CSM, RCS, and CSS were based on preexisting notions about the content and structure of communication styles. To prevent researcher biases from determining which items to include in questionnaires, and consequently which factors and scales emerge, a lexical approach has been advocated instead (Goldberg, 1990). The principle behind a lexical study of communication styles, in line with similar research conducted on personality (Cattell, 1943; Goldberg, 1990), is that anything that can be said about "the way we communicate" must become encoded in language and recorded in a dictionary. Consequently, a dictionary is the ultimate starting point for obtaining a comprehensive list of words on communication styles. Because a researcher has no influence on which words are represented in a dictionary, factor analysis of self-ratings of these words is more likely to provide a comprehensive and "objective" representation of the domain investigated. Personality psychologists have used a lexical approach to uncover the main dimensions of personality, which has led to a consensus about the structure of personality that was inconceivable before the 1980s. The question is whether a lexical approach can do the same for communication styles.

Burgoon, Johnson, and Koch (1998) used a semilexical approach to study the dimensionality of dominant versus submissive communication. Their study was not purely lexical, because they did not obtain words directly from the dictionary but selected words secondhand from lexical personality research. To these words, they added a compilation of words generated by undergraduates. These two approaches generated a list of 120 adjectives reflecting dominance and submissiveness. Factor analysis revealed five main factors: Influence, Conversational Control, Focus and Poise, Panache, and Self-Assurance. Although their study was the first one, as far as we know, to use a semilexical approach to uncover communication styles, two objections may be put forward. First of all, Burgoon et al. restricted their study to only one subset of communication styles (dominance vs. submissiveness). Second, scholars

might object to having people, whether experts or undergraduates, generate a list of words. According to Ashton and Lee (2005), in a discussion of lexical studies in personality research,

> one could ask one or more experts to nominate a set of personality variables to be factor-analysed in search of the major dimensions, but this strategy suffers from the drawback that experts may select variables in such a way that certain aspects of the personality domain are over- or under-represented, leading to a distorted factor-analytic result. (p. 11)

A dictionary-based lexical selection procedure of words related to communication style is less likely to reflect researcher bias because, apart from culture-specific words, a comprehensive dictionary is most likely to provide universal coverage of words associated with a person's communication style. Consequently, a (comprehensive) dictionary provides the most bias-free selection of words available to a researcher.

The current debate on the optimal way to conduct a lexical study is focused on three issues: (a) the "word-class" domain, (b) the presence of evaluative words and factors, and (c) the replicability of factors.[5] First of all, with respect to the word-class domain, the selection of words from a dictionary will determine the type and number of factors obtained. Although personality research has relied mainly on the use of adjectives, some scholars have defended the use of additional word classes, such as verbs (De Raad, 1992, 1999), nouns (Di Blas, 2005; Saucier, 2003), or a combination in the form of short sentences generated from these three word classes (De Raad & Barelds, 2008). Word classes can be arranged on a continuum from abstract to concrete. Type nouns that refer to communication are most abstract; that is, if a person is "communicating" like a *liar* or a *clown*, these nouns refer to membership in a group and lead to stereotypical attributions of characteristics of these groups. Adjectives are less abstract than type nouns, directly referring to traits or characteristics (e.g., *honest*, *comical*) of a person. Verbs are most concrete, referring to actions or states of a person (e.g., *to lie*, *to joke*). Adjectives have been most often preferred in lexical personality research, although it is certainly true that personality information can be conveyed by nouns and verbs (De Raad, 1992). Communication styles can be regarded as being more concrete than personality traits. Although type nouns may convey information regarding stereotypical group communication patterns, individual communication styles are probably most clearly reflected in adjectives[6] and verbs.

Second, another choice that lexical scholars face is how to deal with evaluative words or responses. With respect to response style, there is a general tendency to ipsatize data before subjecting the data to factor analysis to remove variance associated with acquiescence, leniency, and socially desirable responding. However, some scholars have also chosen to factor analyze nonipsatized data (Saucier, Georgiades, Tsaousis, & Goldberg, 2005) to prevent ipsatization partialling substantive variance,

associated with the asymmetric distribution of positive and negative socially desirable terms. A stronger dividing point has been whether to include extreme negative and positive evaluative adjectives, such as *excellent*, *remarkable*, *terrible*, and *horrible* (Ashton & Lee, 2001). The inclusion of mainly evaluative words, which has led to the two additional dimensions of positive and negative valence (Almagor, Tellegen, & Waller, 1995), was objected to by Ashton and Lee (2001), because these terms invite the endorsement (or not) of attitudes with respect to the self-concept instead of responses reflecting actual behaviors. On similar grounds, they objected to the inclusion of ability-related terms, because these do not belong to the personality domain proper.

A third debate revolves about the replicability of factors in different cultures (Ashton & Lee, 2002; Peabody & De Raad, 2002; Saucier, 2002) and the replicability within a given sample (McCrae, Zonderman, Costa, Bond, & Paunonen, 1996; Ostendorf, Mlačić, Hřebíčková, & Szarota, 2004). The first question pertains to the number of dimensions that are universally reproduced in different samples and can be said to be waged in personality research between proponents of three- to seven-factor solutions (for a review, see, Saucier & Goldberg, 2001). The second question pertains to the comparability of factors within a sample and the techniques used to determine the number of factors to extract. Because of the high number of items and high secondary loadings, comprehensive personality studies are generally less well suited for conservative techniques such as confirmatory factor analysis (Church & Burke, 1994). Especially in the exploratory phase, less stringent but still robust ways of testing internal replicability may be preferable (Paunonen, 1997).

In line with the above, we limited ourselves to (a) a study of adjectives and verbs that (b) describe rather than evaluate communication behaviors and to (c) establishing replicability using within-sample tests of factor comparability. The research took place in three phases. In the first phase (Study 1), adjectives and verbs, which were obtained from a dictionary, were sorted on the basis of whether they represented communication styles or not. In the second phase (Study 2), both verbs and adjectives were scored by a panel of raters on the extent to which these words conveyed clear images of communication styles. In the third and final stage (Study 3), self-ratings were obtained on all of the communication style adjectives and verbs selected in the previous phases. Additionally, to compare the lexical communication style dimensions with an existing communication style instrument, we obtained self-ratings on the CSS (Gudykunst et al., 1996). In line with our definition of communication styles, we expected the scales obtained from the lexical study to be better aligned with the communicative behavior scales from the CSS than with the scales representing intrapersonal cognitions and/or feelings associated with communication (i.e., Inferring Meaning, Use of Feelings, and Positive Perception of Silence). The respective studies and their methods and outcomes are described below.

Study 1

Method

To obtain a comprehensive list of words, we obtained adjectives and verbs from the Dutch Van Dale dictionary, which is the most extensive and complete dictionary of the Dutch language. We used two criteria to extract words from the dictionary: one related to content and one related to frequency. The content criterion stipulated that at least one of the meanings of the adjectives or verbs, or none in the case of monosemes (i.e., words with only a single meaning), did *not* contain a label in the dictionary referring to slang (e.g., street talk), technical jargon (e.g., technical words used only in the construction industry), or time (e.g., words that were used only in the Middle Ages), except for words referring to communication or psychology. The frequency criterion stipulated that the selected adjectives and verbs should have frequencies of two or higher in the previous 5 years of five main national newspapers. This latter selection criterion, which was applied on a huge volume of contemporary words, ensured that highly unusual or out-of-date words were excluded from the list. The number of adjectives that fulfilled both criteria was 7,765. The number of verbs that fulfilled both criteria was 7,784. We checked the adjectives obtained from the dictionary against the list of 1,203 Dutch personality adjectives of Brokken (1978) and the list of 986 Dutch interpersonal verbs of De Raad (1985). Most of the adjectives (1,050) and verbs (756) showed overlap with the list from the Dutch dictionary; respectively, 153 and 230 adjectives and verbs did not overlap. In the case of the adjectives, most did not make the Van Dale list because the words were older and less frequently used, such as *aartsvaderlijk* (patriarchal) and *arbeidsschuw* (work shy).[7] Most of the nonoverlapping verbs were noun-verb combinations such as *afscheid nemen* (to say goodbye) or *aansprakelijk stellen* (to hold responsible). Although strictly speaking, on the basis of the criteria, these words should not have been included, to ensure completeness, we decided to add them to our primary data set. Consequently, the first list consisted of 7,918 adjectives and 8,014 verbs.

The 7,918 adjectives and 8,014 verbs were rated twice, with an interval of 2 weeks, by three "expert" raters (the primary author and two communication science scholars), who used the following criteria, based on the definition provided in the introduction:

A word received a 1 if

- it referred to "the way a person communicates" or a person's communication style;
- it referred to nonverbal, paraverbal, or verbal aspects of a communication act; or
- it referred to the activities one undertakes to communicate a message or the situation in which a person communicates with another (face to face, through a letter or mail, by telephone, or through another medium).

A word received a 0 if

- it did not refer to interpersonal interaction (e.g., the adjective *ijzerhoudend* [ferrous], the verb *fietsen* [to bike]);

- it referred only to (acts or transactions involving) physical goods or materials (e.g., the adjective *kostbaar* [expensive], the verb *aanbesteden* [put out to tender]);
- it referred only to an individual's noninterpersonal personality (e.g., the adjective *masochistisch* [masochistic], the verb *priegelen* [to do detailed work]);
- it referred to interpersonal interaction but did not refer to the communicative aspects of the interaction (e.g., the adjective *onafscheidelijk* [inseparable], the verb *afpakken* [to snatch away]);
- it was only evaluative and nondescriptive of communication (e.g., the adjective *goed* [good], the verb *excelleren* [to excel]); or
- it was unknown or highly unusual, or the meaning of the word was ambiguous (e.g., adjective *fantasmagorisch* [phantasmagoric or dreamlike], the verb *peroreren* [to perorate or to sum up one's arguments]).

Results

Because the three raters rated the words twice, the range of scores was from 0 to 6. On the basis of the correlations between the raters, the total interrater reliability was .87 for the adjectives and .84 for the verbs. Words receiving scores of 3 or higher (1,931 adjectives and 1,329 verbs) were directly selected for the next phase. Words receiving scores of 0 did not go on to the next phase. Words receiving scores of 1 or 2 were submitted to an additional selection procedure using the same three raters. These words were scored on a 5-point scale, ranging from 5 (*adjective or verb provides a clear image of the way a person communicates*) to 1 (*adjective or verb does not provide or provides an unclear image of the way a person communicates*). Words with mean scores of 3 or higher and/or words with scores of 5 from one of the three raters were added to the next round. In total, 283 adjectives and 481 verbs made it to the next round, for a total of 2,214 adjectives and 1,810 verbs for Study 2.

Study 2

Method

Participants. We approached 42 students, of whom 21 were communication science students and 21 were Dutch language and culture students, to participate in Study 2. The mean age of the students was 24.55 years ($SD = 5.35$). Of these, 20 students (50% communication science students, 85% female) rated the list of adjectives, and 22 (50% communication science students, 77.3% female) rated the list of verbs.

Procedure. The 20 raters of the adjectives list and the 22 raters of the verbs list were asked to rate a computerized list of the words on the extent to which each of the words referred to an individual's communication style. For the adjectives, the following fill-in sentence was constructed: "During a conversation, s/he communicates/listens in a . . . way." For the verbs, the following fill-in sentence was constructed: "As

a communication/listening style, s/he has a tendency to . . . (somebody/something/him- or herself).” Participants could answer the question of whether the word, which was entered in the fill-in sentence, conveyed a communication style on a 5-point scale ranging from 1 (denoting that the word conveyed no or an unclear image of a person’s communication style) to 5 (denoting that the word directly conveyed a clear image of a communication style).

Results

The average correlation between the 20 raters of the adjective list was .25, and their interrater reliability was .86. The average correlation between the 22 raters of the verb list was .22, and their interrater reliability was .86. On the basis of the answering categories and the content of the items, the cutoff score was set at 3.5. In total, 744 adjectives and 766 verbs with scores of 3.5 or higher were selected. The 766 verbs were rewritten to reflect the fact that a similar word can have different objects and thus a very different meaning (e.g., when communicating, one can criticize another person, but one can also criticize oneself). Three raters independently checked whether verbs did or did not have multiple endings, such as “somebody” (e.g., “iemand te prijzen” [to praise somebody]), “something” or “someone” (e.g., “iets of iemand aan te prijzen” [to recommend something or someone]), or “oneself” (e.g., “mijzelf aan te prijzen” [to recommend oneself]). Any disagreement was resolved through discussion. The final verb list consisted of 837 verb-object constructions.[8]

Study 3

Method

Participants. Participants were recruited through a university respondent pool and advertisements in two local media. After the removal of 18 respondents on the basis of an analysis of answering tendencies,[9] the final usable sample consisted of 441 participants, of whom 193 were university students and 248 were community residents. The sample was made up of 66.2% women ($n = 292$). The age ranged between 14 and 78 years ($M = 31.9$ years, $SD = 13.8$ years). Of the community residents, 32.5% had university or postacademic degrees, 26.8% had higher vocational degrees, 15% had lower or middle vocational degrees, and 25.7% had no tertiary degrees or different educational backgrounds.

Procedure. All participants filled out a computerized questionnaire in which parcels of between 20 and 60 verbs or adjectives were offered in randomized order. They provided self-ratings of the adjectives and verbs using the following sentences: “During a conversation, I tend to communicate in a . . . way” (adjectives) and “As

a communication style, I have a tendency to . . .” (verbs), with the ellipses replaced with each of the 744 adjectives and 837 verbs (with or without objects). Answers were provided on a 5-point (*disagree* to *agree*) scale. Apart from the verbs and adjectives, the community residents were also asked to fill out the CSS (Gudykunst et al., 1996). The CSS consists of 80 items representing eight scales. The items of the scales were translated by the second and fifth authors and back translated by the first author. Any discrepancies between the back translations and the original items were resolved through discussion. The Dutch translation was pilot tested first and was shown to have good psychometric properties. The internal consistency reliability values in this study ranged between .70 for Indirect Communication and .91 for Use of Feelings, with a mean of .80. We asked the community residents to come twice, one time to fill out the lexical study and another time to fill out the CSS and the background information. Half of the community residents responded to the lexical items first and the CSS 1 or 2 weeks later, and the other half responded in the reverse order.

Analyses. First, descriptives of all of the lexical terms used in the study were obtained to establish whether any of the words contained strong evaluative connotations. None of the terms had means less than 1.5 or greater than 4.5. Consequently, we decided to retain all terms for subsequent analyses. Separate analyses were conducted for the adjectives, verbs, and adjectives and verbs combined. For each of the three data sets, within-person standardization (ipsatization) was carried out to remove variance associated with respondents’ answering tendencies. Principal component analyses (PCAs) were conducted on all three data sets. To determine the “optimal” factor solution for each of the three data sets, orthogonal Procrustes analyses were conducted. In Procrustes analysis, targeted rotations of a data set to a hypothesized structure are performed. Although Procrustes analyses have been controversial (e.g., Horn, 1967), recent evidence suggests that they provide robust solutions to questions of factor comparability (McCrae et al., 1996; Paunonen, Jackson, Trzebinski, & Forsterling, 1992). On the basis of Procrustes analyses, the optimal number of factors was determined for each of the three data sets. Subsequently, the 30 highest loading terms from each of the data sets were selected, and scale scores were computed on the basis of the nonipsatized data.

Results

The results of the Procrustes analyses are provided in Table 1. For each of the numbers provided in Table 1, the sample was randomly split in half 20 times. On each of the 20 halves, a targeted orthogonal rotation was performed with the other half as the targeted factor structure. Subsequently, each of the 20 congruence coefficients was converted to a z score using Fisher’s r-to-z transformation. The mean of these 20 z scores was computed, and this mean was converted back to the congruence

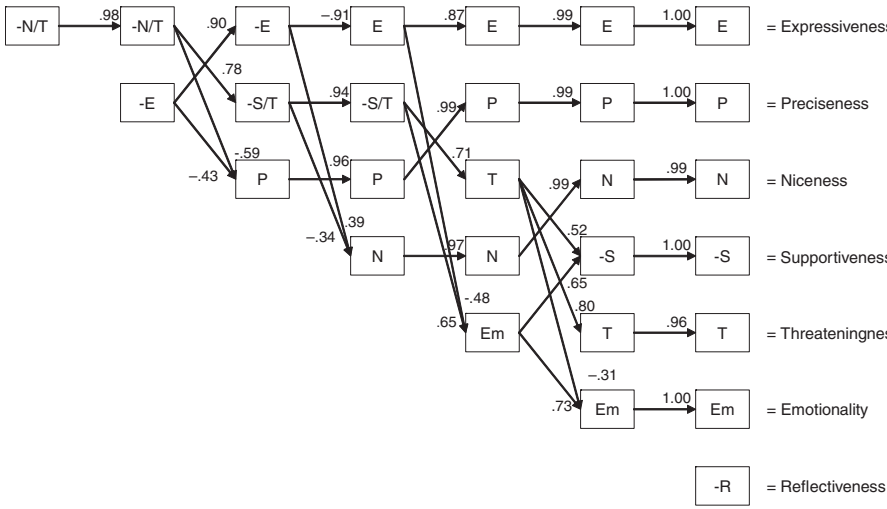
Table 1
Mean Congruence Coefficients of 20 Within-Sample Randomly Split Between-Subject Principal Components Analyses Using Orthogonal Procrustes Rotation of Up to Eight Factors

	1	2	3	4	5	6	7	8	*M*
Adjectives									
2	.91	.91							.91
3	.92	.90	.89						.90
4	.92	.90	.87	.79					.88
5	.92	.91	.88	.80	.79				.87
6	.93	.90	.89	.80	.81	.69			.85
7	.93	.91	.88	.81	.81	.74	.70		.84
8	.92	.90	.86	.82	.79	.74	.69	.71	.82
Verbs									
2	.91	.89							.90
3	.88	.84	.79						.84
4	.90	.89	.85	.85					.87
5	.90	.89	.85	.79	.57				.83
6	.90	.90	.85	.83	.77	.70			.84
7	.90	.88	.84	.82	.77	.73	.68		.82
8	.89	.88	.84	.81	.77	.74	.71	.69	.80
Combined									
2	.91	.90							.91
3	.87	.87	.81						.85
4	.89	.88	.87	.86					.88
5	.89	.89	.86	.85	.82				.86
6	.90	.89	.88	.85	.82	.76			.86
7	.90	.88	.86	.84	.82	.72	.55		.82
8	.90	.88	.87	.84	.81	.72	.68	.63	.81

Note: Each of the congruence coefficients reported here is derived by averaging, after Fisher's *r*-to-*z* transformation, the 20 congruence coefficients of the randomly split samples and transforming the mean *z* scores back to the original metric. The last column's means are calculated in a similar way, using the congruence coefficients reported in each row to the left of the means.

coefficient reported in each cell of Table 1.[10] The mean reported in the right-hand column is the average (after Fisher's *r*-to-*z* transformation and subsequent back transformation) of the congruence coefficients reported in the rows. Because this study is explorative and future researchers might wish to compare their results with ours, we decided on a not too conservative .75 as the cutoff congruence coefficient. This has been found to be the level at which there is an estimated 5% probability that congruence coefficients do not exceed random factor comparability levels (Paunonen et al., 1992, Tables 2 and 5). Additionally, in a simulation study, Paunonen (1997) showed that the mean 95% confidence limit of the congruence

Figure 1
Factor Tree With Pearson's Correlations Greater Than .30 of the One to Seven Principal Components Solutions of the Combined List (consisting of both adjectives and verbs)



coefficient of randomly permuted factor loadings was lower than .75 for data sets with high numbers of variables, such as in this study, and low salient loadings. For the (right-hand column) mean congruence coefficient, we used a more conservative level of .85 as the cutoff value.

As can be seen in Table 1, using these cutoff levels (.75 for the single-factor congruence coefficients and .85 for the cross-factors congruence coefficients), we arrived at a five-factor solution for adjectives, a four-factor solution for verbs, and a six-factor solution for adjectives and verbs combined. Looking at the content of the factors not only of these solutions but also of solutions containing fewer and more factors, we decided to deviate somewhat from our initial cutoff levels for the solution with combined adjectives and verbs. Although the congruence coefficient was low (.55), the seventh factor in the data for combined adjectives and verbs contained content strongly resembling the factor openness to experience in personality research. Additionally, none of the other factors in the solution was changed to any substantial degree when this factor was extracted (see the factor correlations between the six- and seven-factor solutions reported in Figure 1). Therefore, although we should caution the reader about the cross-sample existence of this factor, we decided to incorporate the results from this factor in subsequent analyses.

In Table 2, the 30 highest loading verbs and adjectives of the seven factor solution are reported. The seven factors are expressiveness (e.g., *extroverted*, *eloquent*, and *fluent* vs. *withdraw into one's shell*, *to fall silent*, and *to snap shut*), preciseness (e.g., *professional*, *expert*, and *precise* vs. *to waffle*, *to gas*, and *to giggle*), niceness (e.g., *nice*, *softhearted*, and *friendly* vs. *to keep harping on something*, *to make a fuss about something*, and *to contest something*), supportiveness (e.g., *to comfort someone*, *to put someone in the limelight*, and *to compliment someone* vs. *sarcastic*, *cynical*, and *mean*), threateningness (e.g., *to abuse someone*, *to bark at someone*, and *to threaten*), emotionality (e.g., *piqued*, *stressed*, and *sad* vs. *to joke*, *to be ironic about something*, and *relaxed*), and reflectiveness (e.g., *to dissect oneself*, *to dissect something or someone*, and *passionate* vs. *coolly*, *formal*, and *to make a fool of someone*).

In Figure 1, the PCA factor tree is reproduced for the first to seventh factor solution of the combined data. The factor tree, which can be read in conjunction with Table 2, shows the appearance and development of the factors in the different factor solutions. As can be seen in Figure 1, the most fundamental three factors are probably expressiveness, a blend of supportiveness and threateningness, and preciseness. Niceness and emotionality are derived from both expressiveness and the combination of supportiveness and threateningness. Reflectiveness is the only additional factor that does not seem to be derived from other previous factors.

If we look beyond the 7 factors of the combined (adjectives and verbs) data, in the 8-factor solution, a new factor emerges that combines some of the variance of reflectiveness and preciseness. It is characterized by terms such as *conscious*, *devoted*, and *credible* versus *vulgar*, *lax*, and *bored*. In the 9-factor solution, again the reflectiveness factor splits off some of its variance to combine itself with niceness. High-loading terms are *obedient*, *sugary*, and *moody* versus *to explain something*, *to make concrete*, and *to dissect something or someone*. Finally, in the 10-factor solution, the new factor in the 8-factor solution is recombined with reflectiveness to form a sternness versus humor factor, represented by terms such as *stern*, *to preach*, and *preachy* versus *humorous*, *funny*, and *comical*.

As described previously, the 30 (nonipsatized) highest loading terms from the adjectives, verbs, and combined factor solutions were used to form marker scales. Descriptives, reliabilities, and intercorrelations of the marker scales are reported in Table 3. The reliabilities of the marker scales ranged between .84 and .97 (median = .93). Although, as reported above, none of the terms had means less than 1.5 or greater than 4.5, the means of the fourth adjective factor (a4), the third verb factor (v3), and the fifth combined factor (c5) were all less than 2.0, reflecting the presence of an evaluative component. As can be seen in Table 3, these three factors from separate PCAs were strongly correlated. All three factors represent threatening communication (see Table 2, Factor 5), which has both strong negative connotations and a low base rate.

Apart from Threateningness, if we use a correlation greater than .60 as an indication of scale comparability, the combined Expressiveness marker scale is strongly

Table 2
Highest Loading Adjectives and Verbs in the Seven Principal Components Solution (after varimax rotation) of the 744 Adjectives and 837 Verbs Combined

1. Expressiveness (4.05%)
   Extroverted (extravert) .56, eloquent (goedgebekt) .55, fluent (gebekt) .53, temperamental (temperamentvol) .53, self-assured (zelfverzekerd) .53, talkative (spraakzaam) .53, sure (zeker) .51, articulate (mondig) .51, energetic (energiek) .50, withdraw into one's shell (in mijn schulp te kruipen) –.66, to fall silent (stil te vallen) –.61, to snap shut (dicht te klappen) –.61, to clam up (dicht te slaan) –.59, to hide oneself (mijzelf te verbergen) –.58, to keep quiet (mijzelf stil te houden) –.57, to wait and see (af te wachten) –.56, to remain silent (te stilzwijgen) –.56, to withdraw myself (mijzelf terug te trekken) –.56, shy (verlegen) –.55, to be silent (te zwijgen) –.54, reserved (terughoudend) –.53, to not commit oneself (mijzelf op de vlakte te houden) –.53, to surpress oneself (mijzelf te onderdrukken) –.53, to hesitate (te aarzelen) –.52, to heavily criticize oneself (mijzelf af te breken) –.52, closed (gesloten) –.51, restrained (ingehouden) –.51, introverted (introvert) –.51, to waver (te weifelen) –.51, to keep oneself aloof (mijzelf afzijdig te houden) –.50
2. Preciseness (3.90%)
   Professional (professioneel) .58, expert (deskundig) .57, precise (precies) .57, efficient (efficiënt) .56, well-thought-out (weldoordacht) .56, concise (kernachtig) .54, consistent (consistent) .54, well-prepared (welbedacht) .54, meticulous (secuur) .54, purposeful (doelgericht) .53, meticulous (zorgvuldig) .53, businesslike (zakelijk) .52, skillful (vakkundig) .52, composed (rustig) .52, conscious (bewust) .52, cautious (bedachtzaam) .51, accurate (accuraat) .51, crystal-clear (glashelder) .51, functional (doelmatig) .51, disciplined (gedisciplineerd) .51, directed (gericht) .50, mature (volwassen) .50, consistent (consequent) .50, calm (kalm) .50, well-considered (weloverwogen) .50, clear (duidelijk) .50, decisive (besluitvaardig) .49, resolute (vastbesloten) .49, credible (geloofwaardig) .49, to waffle (te ouwehoeren) –.49
3. Niceness (3.44%)
   Nice (aardig) .54, soft-hearted (zachtaardig) .52, friendly (vriendschappelijk) .49, cheerful (vrolijk) .47, kind (vriendelijk) .47, laughing (lachend) .46, funny (leuk) .46, understanding (begrijpend) .46, modest (bescheiden) .46, sympathetical (sympathiek) .45, polite (beleefd) .44, loving (liefdevol) .44, pleasant (prettig) .44, happy (blij) .43, sympathetic (medelevend) .43, sweet (lief) .43, to put someone in the wrong (iemand in 't ongelijk te stellen) –.49, to keep harping on something (ergens op te hameren) –.48, to make a fuss about something (ergens ophef over te maken) –.46, to contest something (iets aan te vechten) –.46, to dispute (iets te betwisten) –.45, to persuade someone (iemand te overreden) –.45, to teach someone a lesson (iemand les te geven) –.45, to protest (te protesteren) –.45, to push something through (iets door te douwen) –.44, to direct someone (iemand te dirigeren) –.44, to put someone in a tight spot (iemand in het nauw te drijven) –.43, to put up a struggle (tegen te stribbelen) –.43, to revolt (in opstand te komen) –.43, to bring something to a head (iets op de spits te drijven) –.43
4. Supportiveness (3.30%)[a]
   Sarcastic (sarcastisch) .47, cynical (cynisch) .43, mean (gemeen) .41, to comfort someone (iemand te troosten) –.54, to put someone in the limelight (iemand in het zonnetje te zetten) –.53, to compliment someone (iemand te complimenteren) –.52, to admire someting or someone (iets of iemand te bewonderen) –.50, to support someone (iemand te ondersteunen) –.49, to calm down someone (iemand te kalmeren) –.49, to encourage someone (iemand aan te moedigen) –.49, to sympathize with someone (met iemand mee te voelen) –.47, to pep someone up (iemand op te peppen) –.46, to appreciate something or someone (iets of iemand te waarderen) –.46, to pour out one's heart (mijn hart uit te storten) –.46, to empathize (met iemand mee te leven) –.45, to make someone happy (iemand te verblijden) –.45, to cheer up someone (iemand op te beuren) –.44, to

(continued)

Table 2 (continued)

ease something (iets te verzachten) –.44, to take someone under one's protection (iemand in bescherming te nemen) –.44, to help someone (iemand te helpen) –.44, to support something or someone (iets of iemand te steunen) –.44, to meet someone part of the way (iemand tegemoet te komen) –.43, to praise someone (iemand te prijzen) –.43, to play mother (te moederen) –.42, to take someone into one's confidence (iemand in vertrouwen te nemen) –.42, to reassure someone (iemand gerust te stellen) –.42, to stimulate someone (iemand te stimuleren) –.41, to urge (on) someone (iemand aan te sporen) –.41, to cheer up someone (iemand op te vrolijken) –.41, to reconcile someone with something (iemand met iets te verzoenen) –.41

5. Threateningness (2.63%)

To abuse someone (iemand uit te schelden) .55, to bark at someone (iemand af te blaffen) .55, to threaten (te dreigen) .53, to bark (te blaffen) .53, to roar (te brullen) .53, to boo someone (iemand uit te jouwen) .53, to scream something (iets uit te krijsen) .52, to blackmail someone (iemand te chanteren) .51, to threaten someone (iemand te bedreigen) .51, to humiliate someone (iemand te vernederen) .51, to snap at someone (iemand af te bekken) .51, to jeer at someone (iemand uit te joelen) .51, to bully someone (iemand te tiranniseren) .50, to belittle someone (iemand te kleineren) .50, to tell someone off (iemand uit te kafferen) .50, to wipe the floor with someone (iemand onderuit te halen) .48, to hit someone when he/she is down (iemand een trap na te geven) .48, to offend someone (iemand te krenken) .48, to bugger around someone (iemand te besodemieteren) .48, to squall (te blèren) .48, to spoil something (iets te verzieken) .48, to bring someone down (iemand omlaag te halen) .47, to cheat on someone (iemand te bedonderen) .47, to look for trouble (ruzie te zoeken) .45, to yell (te schreeuwen) .45, to deceive someone (iemand te belazeren) .44, to pester someone (iemand te pesten) .44, to snap at someone (iemand af te snauwen) .44, to take someone in (iemand te bedriegen) .43, to cry out something (iets uit te schreeuwen) .43

6. Emotionality (2.46%)

Piqued (gepikeerd) .47, stressed (gestrest) .46, sad (droevig) .45, bad-tempered (slechtgehumeurd) .45, depressed (gedeprimeerd) .44, dejected (neerslachtig) .44, upset (overstuur) .44, worked up (opgefokt) .43, angry (boos) .43, sulky (chagrijnig) .42, downcast (terneergeslagen) .42, tense (gespannen) .42, anxious (angstig) .41, hurt (gekwetst) .41, unreasonable (onredelijk) .41, cross (nijdig) .41, irritable (prikkelbaar) .41, panicky (paniekerig) .40, angry (kwaad) .40, forced (krampachtig) .40, annoying (vervelend) .40, pissed off (pisnijdig) .40, sad (verdrietig) .40, hurried (gejaagd) .40, gloomy (somber) .39, narcotic (slaapverwekkend) .39, awkward (ongemakkelijk) .39, constrained (verkrampt) .38, limited (beperkt) .38, touchy (aangebrand) .37

7. Reflectiveness (1.44%)[a]

Coolly (koeltjes) .43, formal (formeel) .33, to make a fool of someone (iemand iets wijs te maken) .28, to reprimand someone (iemand terecht te wijzen) .27, to talk someone round (iemand om te praten) .27, melancholic (zwaarmoedig) .27, to dissect oneself (mijzelf te ontleden) –.44, to dissect something or someone (iets of iemand te ontleden) –.42, passionate (geestdriftig) –.41, engaged (geëngageerd) –.40, to reflect (on) (te reflecteren) –.38, to philosophize (te filosoferen) –.37, poetic (poëtisch) –.37, sensitive (sensitief) –.36, profound (diepgravend) –.36, philosophical (filosofisch) –.36, to explore something (iets uit te diepen) –.34, to fathom something or someone (iets of iemand te doorgronden) –.34, to ridicule oneself (mijzelf te bespotten) –.33, to muse (on) (te mijmeren) –.32, poetic (dichterlijk) –.32, uninhibited (onbevangen) –.31, to root (te wroeten) –.31, hypersensitive (hypergevoelig) –.31, to expose something (iets bloot te leggen) –.29, inspired (geïnspireerd) –.28, penetrating (indringend) –.28, busy (druk) –.27, profound (diepzinnig) –.26, to explore something (iets te exploreren) –.25

Note: Values in parentheses are percentages of explained variance of the factors.

a. These factors contain substantially more high-loading negative than positive terms, and thus the names of Factor 4 (Supportiveness) and Factor 7 (Reflectiveness) reflect the negative instead of the positive pole of these dimensions.

Table 3
Descriptives and Pearson's Correlations of Marker Scales Based on the 30 Highest Loading Items per Factor of the Adjectives (a), Verbs (v), and Combined (c) Principal Components Solutions

	a1	a2	a3	a4	a5	v1	v2	v3	v4	c1: Ex	c2: P	c3: N	c4: S	c5: T	c6: Em	c7: R
a1	*.94*															
a2	.23	*.92*														
a3	.04	–.27	*.89*													
a4	.21	.30	–.52	*.96*												
a5	–.08	–.26	.22	–.32	*.96*											
v1	.03	.14	**–.64**	.31	–.10	*.92*										
v2	**–.73**	–.21	–.09	–.21	.05	.19	*.95*									
v3	.11	.20	–.49	**.80**	–.28	.33	–.22	*.97*								
v4	–.10	–.57	.24	–.56	.40	–.11	.19	–.52	*.89*							
c1: Ex	**–.90**	–.17	–.15	–.12	.01	.12	**.90**	–.09	.06	*.95*						
c2: P	–.20	**–.92**	.26	–.27	.48	–.18	.14	–.18	.57	.13	*.92*					
c3: N	.06	–.05	**.73**	–.43	.10	–.34	.05	–.50	.09	–.07	.03	*.88*				
c4: S	.13	.13	–.53	.30	–.17	**.89**	.14	.26	–.08	.03	–.21	–.17	*.92*			
c5: T	.10	.22	–.49	**.78**	–.26	.31	–.23	**.98**	–.55	–.08	–.19	–.50	.22	*.97*		
c6: Em	.49	.34	–.37	**.61**	–.21	.09	–.52	.52	–.43	–.41	–.21	–.31	.04	.56	*.96*	
c7: R	.03	.14	–.09	.05	–.26	.22	.23	.04	–.21	.06	–.20	.17	.28	.03	–.14	*.84*
M	2.46	2.60	3.71	1.74	3.08	2.25	3.52	1.80	3.54	3.41	3.34	3.53	2.42	1.80	2.10	2.94
SD	0.54	0.46	0.38	0.51	0.71	0.40	0.63	0.56	0.47	0.61	0.47	0.39	0.46	0.56	0.54	0.41

Note: Reliabilities are on the diagonal. Correlations in boldface type are greater than .60; r values ≥ .13 are significant at $p \leq .01$, and r values ≥ .10 are significant at $p \leq .05$. Ex = Expressiveness; P = Preciseness; N = Niceness; S = Supportiveness; T = Threateningness; Em = Emotionality; R = Reflectiveness.

comparable with the first adjectives marker scale (a1) and second verbs marker scale (c2). Preciseness, Niceness, and Emotionality are comparable with, respectively, the second (a2), third (a3), and fourth (a4) adjectives marker scales, and Supportiveness is comparable with the first verbs marker scale (v1).[11] The combined Reflectiveness factor marker scale did not have a direct analogue in either the adjectives or verbs marker scales.

We conducted regression analyses (not reported) to determine the amount of variance in each of the word-class factors explained by the other word classes. When regressing each of the adjectives scales on all of the verbs scales, the verbs scales explained a substantial amount of variance in the adjectives marker scales a1, a3, and a4 (respectively, 58%, 50%, and 67%). However, the verbs scales explained a somewhat lower 38% of the variance in the second adjectives marker scale (a2, which is comparable with the combined marker scale preciseness) and only 17% of the variance in the fifth adjectives marker scale (a5, which did not have a direct analogue in the combined marker scales). In turn, the adjectives scales explained 42%, 55%, 65%, and 55% of the variance in verbs marker scales v1 to v4.

We conducted multiple regression analyses using each of the eight scales from the CSS (Gudykunst et al., 1996) as dependent variables and the combined lexical marker scales as independent variables. To determine whether the CSS scales were "within" the factor space of the lexical marker scales, we used the communality criterion of .20 proposed by Paunonen and Jackson (2000). Consequently, if more than 20% of the variance in one of the CSS scales was explained by the lexical marker scales, we regarded it as a sign that the scale conformed to our operationalization of a communication style. The results, reported in Table 4, show that five of the CSS scales (Indirect Communication, Interpersonal Sensitivity, Dramatic Communication, Openness, and Preciseness) conform to our communication style operationalization. Two of the scales, Use of Feelings and Positive Perception of Silence, do not conform to the criterion, and one scale, Inferring Meaning, is a borderline case. The results also show that mainly the first four lexical marker scales are related to the CSS scales. In the multiple regression equations, the lexical marker scale Expressiveness was most strongly related to CSS Openness ($\beta = .59$, $p < .01$), followed by CSS Dramatic Communication ($\beta = .42$, $p < .01$), Interpersonal Sensitivity ($\beta = -.35$, $p < .01$), and Indirect Communication ($\beta = -.33$, $p < .01$). The lexical marker scale Preciseness was most strongly related to CSS Preciseness ($\beta = .44$, $p < .01$). The lexical marker scale Niceness was most strongly related to CSS Interpersonal Sensitivity ($\beta = .35$, $p < .01$). Although CSS Use of Feelings did not meet the .20 criterion (Paunonen & Jackson, 2000), it was most strongly related to the lexical marker scale Niceness ($\beta = .34$, $p < .01$). Theoretically, this makes sense, because people who are focused on other people's feelings are probably also more likely to communicate in a friendly or nice manner.

Table 4
Multiple Regression of Gudykunst et al.'s (1996) Communication Style Scale on the Lexical Communication Style Marker Scales ($n = 223$)

	Communication Style Scale							
Lexical Factor	Inferring Meaning	Indirect Communication	Interpersonal Sensitivity	Dramatic Communication	Use of Feelings	Openness	Preciseness	Positive Perception of Silence
Expressiveness	.12	**–.33****	**–.35****	**.42****	.18*	**.59****	.19**	.11
Preciseness	.26**	–.12	.17**	–.26**	–.14*	–.20**	**.44****	.14
Niceness	.15*	–.01	**.35****	.12	.26**	–.01	–.12	–.09
Supportiveness	.20**	–.03	.16*	.21**	**.34****	.28**	.08	–.08
Threateningness	.29**	.16	–.03	.16*	.02	.07	–.03	–.14
Emotionality	–.22*	.02	–.05	.18*	.15	.17*	.04	–.14
Reflectiveness	.10	–.10	–.13	.22**	.08	.20**	–.09	.09
Multiple R	.47	.49	.59	.53	.45	.63	.51	.36
R^2	.22	.24	.35	.29	.20	.40	.26	.13
Adjusted R^2	.20	.22	.33	.26	.18	.38	.24	.10

Note: Values are standardized regression coefficients (β values). Correlations in boldface type are greater than .30.
*$p < .05$. **$p < .01$.

Discussion and Conclusions

The results seem to support at least six main dimensions of communication styles, in this article called expressiveness, preciseness, niceness, supportiveness, threateningness, and emotionality. Because of its resemblance to the personality dimension openness to experience, and because it provided unique variance not associated with the six other dimensions, we also extracted a seventh dimension, here called reflectiveness. The seven dimensions can be remembered by the acronym PRESENT, for Preciseness, Reflectiveness, Expressiveness, Supportiveness, Emotionality, Niceness, and Threateningness.[12] The Expressiveness factor reflects a mix of talkativeness (vs. uncommunicativeness), certainty (vs. uncertainty), energy, and eloquence. Most of the verbs in this factor reflect the negative pole of the dimension, while adjectives are present at both the negative and positive pole. The Preciseness factor consists of a mix of clarity (vs. vagueness), conciseness, efficiency, and (businesslike) composure. It consists mainly of adjectives. The Niceness factor consists of the components friendliness (vs. unfriendliness), uncriticalness (vs. argumentativeness), modesty, and cheerfulness. Adjectives load highly on the positive pole of this factor, and verbs load highly on the negative pole. In contrast with the Niceness factor, the Supportiveness factor can be characterized as a relational response factor, consisting of mainly verbs that denote how one responds to a specific person. Thus, niceness seems to reflect a general communication attitude, while supportiveness reflects the actual communication behaviors in response to someone else. Supportiveness consists mainly of the components accommodation, admiration, supportiveness, and stimulation. The Threateningness factor consists mainly of the components abuse, threateningness, and deceptiveness. Its highest loading terms are all verbs with strong negative connotations. The Emotionality factor seems to reflect the components sadness, irritability, anger, and tension. The highest loading terms are all adjectives. Finally, the less well reproducible Reflectiveness factor is clearly a smaller factor, containing both verbs and adjectives, but uncorrelated to one of the four verbs factors or five adjectives factors, and consisting mainly of the components engagement, analytical reflectiveness, and philosophical or poetic communication behaviors.

Do the dimensions obtained in this study resemble the scales from the CSS (Gudykunst et al., 1996), which was obtained through a combination of other communication scales that were derived in nonlexical communication style research? Of the CSS scales, Openness and Dramatic Communication were most strongly related to lexical Expressiveness. In our study, CSS Openness and CSS Dramatic Communication shared the highest correlation ($r = .39$, $p < .01$). Consequently, CSS Openness and CSS Dramatic Communication seem to share a substantial amount of variance with each other and with lexical Expressiveness and may thus be regarded as facets of an underlying (Dramatic) Expressiveness construct. In line with the convergence in names, CSS Preciseness was most strongly related to lexical Preciseness

and did not share much variance with other constructs. Consequently, not only does Preciseness seem to be an important construct because it appeared early in the factor tree and as the next to largest factor in the PCA, it also seems to be a factor that can be clearly demarcated from other constructs. CSS Interpersonal Sensitivity was positively related to lexical Niceness and negatively to lexical Expressiveness. The items of CSS Interpersonal Sensitivity stress listening skills, modesty, adjustment, respect, and hiding of feelings, which are all signs of both communicative niceness and low expressiveness. Consequently, CSS Interpersonal Sensitivity may be regarded as an interstitial facet in the dimensional space spanned by the Expressiveness and Niceness communication style factors. CSS Indirect Communication is most closely aligned to lexical Expressiveness, sharing a negative correlation.[13] The items of CSS Indirect Communication, which refer to the use of silence, evasive, indirect, and ambiguous communication, and the avoidance of expressing feelings, indeed seem to reflect an underlying lack of expressiveness. CSS Indirect Communication may thus also be regarded as a facet, although negatively defined, of an underlying Expressiveness construct.

Three of the CSS scales—Positive Perception of Silence, Use of Feelings, and Inferring Meaning—are not as well aligned with the lexical scales. We argued in the introduction that the CSS scales may have a somewhat different focus, referring to intrapersonal cognitions or affect instead of communicative behaviors. The main element of Positive Perception of Silence is how comfortable an individual feels with silence, which does not necessarily reflect on behavior itself. In fact, CSS Positive Perception of Silence is virtually unrelated to lexical Expressiveness. Consequently, people who feel comfortable about silence are not necessarily less expressive. The items of CSS Use of Feelings refer to the extent people trusts their feelings and use them to orient themselves toward others. Although it is found to be related to lexical Supportiveness, it may be regarded as the intrapersonal empathic ability conducive to supportive communication. The items of CSS Inferring Meaning refer to the extent to which people feel that they know others' feelings and needs and are able to recognize others' subtle messages. Again, the items seem to primarily reflect intrapersonal feelings and abilities, which may or may not translate themselves into communicative behaviors. To conclude, each of the first three and main dimensions in this lexical study seems to be matched by one or more of the CSS scales of Gudykunst et al. (1996). However, the last three dimensions are not well covered by these scales. There are no direct analogues in the CSS to the Threateningness, Emotionality, and Reflectiveness dimensions uncovered in the present research. Additionally, three of the CSS scales fall outside the lexical communication style space as defined in this study.

Some people might note that the .20 criterion of Paunonen and Jackson (2000) is a highly subjective criterion when determining what scales fall within and what scales fall outside the space formed by the lexical marker scales. Although we agree that other cutoff criteria might be equally defensible, it would not change anything

about the rank ordering of the explained variance in the CSS scales, with the lexical marker scales explaining most variance in Openness, Interpersonal Sensitivity, and Dramatic Communication and least variance in the Positive Perception of Silence, Use of Feelings, and Inferring Meaning. However, to check whether these results were invariant to the predictors used, we also conducted similar analyses using the factors derived from the original factor loadings in the PCA on the lexical terms. The results showed that the same three CSS scales—Positive Perception of Silence, Use of Feelings, and Inferring Meaning—had the lowest explained variance of all scales. Additionally, the explained variances in these three variables (both R^2 and adjusted R^2) were below the .20 cutoff criterion used in this study. These results further strengthen the underlying differences between our conceptualization and the one used in the CSS.

We should note that far from arguing that these differences invalidate the CSS or parts thereof, we would like to point out that constructs such as CSS Positive Perception of Silence, Use of Feelings, and Inferring Meaning are important in their own right in attitude formation and decision making. However, we would also like to stress that we think it important to separate interpersonal communicative behaviors from intrapersonal affects and cognition. In observational studies or communication assessments, for instance, it may be impossible to ascertain whether an individual has a positive perception of silence, or cognitions and affects associated with Use of Feelings and Inferring Meaning. In these types of studies, a purely behavioral scale of communication styles would thus be preferable.

Although the length of the survey prevented the inclusion of more questionnaires, on the basis of the content of the PRESENT communication styles uncovered in this study, some similarities with other communication styles proposed by communication scholars may be noted. First of all, most general communication styles scales seem to contain components associated with expressiveness, niceness, supportiveness, and emotionality. For instance, the RCS (Burgoon & Hale, 1987; Gallagher, Hartung, & Gregory, 2001; Walther & Burgoon, 1992) contains intimacy scales (immediacy/affection, similarity/depth, receptivity/trust) that reflect aspects of niceness and supportiveness. Expressiveness is present in the dominance and (in)formality scales of the RCS, and the (lack of) tension present in the composure scale of the RCS can also be found in the (lack of) emotionality found in our lexical study. Both niceness/supportiveness and expressiveness are also found in the sociocommunicative style constructs responsiveness and assertiveness (Merrill & Reid, 1981; Richmond & Martin, 1998; Thomas, Richmond, & McCroskey, 1994), in which responsiveness involves communication that is other oriented (e.g., friendly, compassionate, and warm), and assertiveness involves a certain and expressive way of communicating, for instance, by talking faster and louder, using more gestures, making more eye contact, and leaning more forward during interactions (Merrill & Reid, 1981), all nonverbal and paraverbal aspects of an expressive communication style. Expressiveness and emotionality can also be found in the dynamism/confidence and relaxation

facets of interpersonal or interactional dominance (Burgoon et al., 1998; Dunbar & Burgoon, 2005), suggesting that interpersonal or interactional dominance is a subset of the communication style domain.

Second, although named differently, there appears to be an overlap between the lexical preciseness construct and goal-oriented communication competence in theories of message production (Berger, 1997; Greene, 1997; Wilson & Sabee, 2003). According to the goals-plans-action theories of communication competence (Wilson & Sabee, 2003), competent communicators have an anticipatory mind-set (equal to well prepared and well thought out in preciseness), efficient executive control (e.g., efficiency), and a strong developed knowledge system to understand, monitor, and adjust multiple goals and plans (e.g., expertise). The apparent expertise of a precise communicator may translate itself in higher perceived source credibility. Consequently, preciseness may be regarded as an important variable in studies on marketing and interpersonal communication in organizations.

Third, threateningness and reflectiveness resemble, respectively, the verbal aggressiveness and argumentativeness constructs that have been extensively studied by Infante and colleagues (e.g., Infante & Rancer, 1982; Infante & Wigley, 1986). Verbal aggressiveness is defined by messages that attack an interactional partner's self-concept, such as character, competence, or appearance attacks; teasing; swearing; ridicule; and threats (Wigley, 1998). Verbal aggressiveness has been implicated in negative consequences in the family situation (spousal or parent-child relations; Wigley, 1998) and lower levels of satisfaction among subordinates of verbal aggressive supervisors (Infante & Gorden, 1985). Argumentativeness, in contrast, includes arguing about or advocating positions in discussions instead of attacking the self-concepts of others (Rancer, 1998). Consequently, argumentativeness is focused on the content of the discussion instead of the person. This resembles the tendency to dissect something, to philosophize, to explore, and to expose an issue in the lexical reflectiveness construct. Argumentativeness may have several benefits, such as the stimulation of curiosity, the reduction of egocentric thinking, and the increase in persuasiveness. In contrast to verbal aggressiveness, argumentativeness seems to be associated with positive consequences in family and organizational settings (Rancer, 1998).

All in all, each of the communication style studies noted above seems to address a part of this study's empirically derived lexical communication style framework. Consequently, the structural communication styles framework presented here appears to cover important but mostly separate lines of research involving communication style constructs that have been, over time, proposed by a wide array of communication style scholars.

Apart from the relations with existing communication style measures, do the communication style dimensions reflect underlying personality dimensions? Personality traits are much broader and expressed in a wide variety of situations, including those that, from an interpersonal perspective, are noncommunicative. Cheating on tax forms, sleeping problems, going to parties, caring for the elderly,

cleaning habits, and cultural activities are all examples of behaviors that express personality but that do not bear directly on one's communication style. On the other hand, some personality dimensions are clearly more communicative than others, such as shown in research by Leung and Bond (2001), who found extraversion to be the most important correlate of a number of interpersonal communication styles. Therefore, it is to be expected that part of the personality dimensions is covered by the communication style dimensions, and part is not.

When comparing the communication style dimensions with the "narrow" interpersonal personality domain of the Interpersonal Circumplex (i.e., mainly extraversion and agreeableness; Trapnell & Wiggins, 1990), the results show that the communication style domain is broader than the Interpersonal Circumplex domain. Expressiveness contains terms that are associated with "control" or "agency" in the Interpersonal Circumplex, such as *dominant* and *passive*, and the "love" or "communion" dimension of the Interpersonal Circumplex and is recovered in the niceness, threateningness, and supportiveness dimensions. However, preciseness, emotionality, and reflectiveness are less well covered by the Interpersonal Circumplex. It can be argued that the communication style domain is broader than the Interpersonal Circumplex domain because the former may contain communicative behaviors that are "intransitive"; that is, the verbs or adjectives denoting the behavior have no fixed "object" (person). In contrast, niceness, threateningness, and supportiveness are "transitive" in the sense that they do refer to a fixed person, such as in to be nice *to someone*, to threaten *someone*, and to support *someone*.[14] Nonetheless, the interpersonal action-reaction mechanisms (Wagner, Kiesler, & Schmidt, 1995) suggested for the Interpersonal Circumplex may actually incorporate the intransitive communicative behaviors. For instance, the transitive threateningness expressed by a communication partner may evoke intransitive emotionality in the other communication partner. Although emotionality is intransitive, it may however (be meant to) evoke a supportive reaction in the communication partner. Especially the fact that "controlling" threats may evoke noninterpersonal emotional responses and that these in turn may soften (or not) the threatening communication partner is not well incorporated in the Interpersonal Circumplex approach.

When comparing the communication styles with personality, it can be concluded that the dimensions found are closely, but not wholly, aligned with dimensions uncovered in personality research. Expressiveness, preciseness, emotionality, and reflectiveness seem to be communicative versions of Big Five and Five-Factor Model extraversion, conscientiousness, emotional (in)stability, and openness to experience. Especially for preciseness and reflectiveness, these results are somewhat unexpected, because the items used in personality research rarely incorporate communication style items in the operationalizations of conscientiousness and openness to experience. The honesty-humility component, which has been found in personality research (Ashton, Lee, & Goldberg, 2004; Ashton, Lee, Perugini, et al., 2004), seems to divide itself among two factors: threateningness (with deceptiveness as a

facet) and niceness (with modesty as a facet). On the basis of the finding that the honesty-humility items are more often operationalized in terms of noncommunicative than in terms of communicative behaviors, it may not come as a surprise that a separate honesty-humility factor is not found. However, the altruism personality space, proposed by Ashton and Lee (2001) in their six-dimensional personality model, seems to be preserved in the factors niceness, supportiveness, and (reversed) threateningness, but less so in emotionality. Emotionality seems to retain not only the (expressed) anxiety, depression, and tension facets observed in the Five-Factor Model, but also the irritability component, which in the six-dimensional model has shifted position to the agreeableness factor.

Do the communication styles reflect dispositional traits or situational demands? This research does not provide an unequivocal answer to this question, although the emergence in this study of clear interpretable dimensions may be regarded as supportive of a dispositional, or at least a coherent self-representational stance. According to the trait perspective, advocated by McCroskey et al. (1998), communication styles have a biological and temperamental origin. However, because communication styles are probably more "statelike" than personality traits, it is not unimaginable that situational demands play a role. For instance, studies on groupthink have found that communication styles can be influenced to some extent; for example, people have been found to refrain from posing critical questions or remarks to avoid intragroup conflict (Janis, 1972; Paulus, 1998; Postmes, Spears, & Cihangir, 2001). Future researchers may wish to investigate whether groups, in which groupthink occurs, are more prone to communication styles that are characterized by niceness and supportiveness. Additionally, studies on deindividuation have found that group norms that support disinhibitive and antinormative (i.e., threatening) communication will foster this kind of communication in group members (Postmes & Spears, 1998). Consequently, the way one communicates may be to some extent a function of the group one identifies with.

In a similar vein, from applicant research, there is evidence that impression management determines responses in interviews and questionnaires (Bagby & Marshall, 2003; Paulhus, Bruce, & Trapnell, 1995). Studies have confirmed that impression management appears to work; applicants who use ingratiation and self-promotion (i.e., mostly niceness and expressiveness) are more likely to be evaluated positively and to get job offers than applicants who do not use such tactics (e.g., Higgins & Judge, 2004; McFarland, Ryan, & Kriska, 2003). However, it is not clear to what extent impression management tactics are used in daily life. Although some people, such as self-monitors, may be more prone and capable of molding their self-presentation (Rowatt, Cunningham, & Druen, 1998; Turnley & Bolino, 2001), it is not likely that they will do so continuously.

In terms of the communication style definition provided in the introduction, the personality perspective focuses on the way a communication style helps a person denote "who he or she is," while both the social identity and impression management perspectives focus on the way a communication style helps a person to denote "who

he or she wants to (appear to) be." Pure social identity theorists probably reject the idea that people can be characterized by a fixed communication style, arguing that in every situation, a different social identity and thus a different pattern of communication is made salient. Although studies on social identity and impression management point to a situational component of communication styles, meta-analytic evidence suggests that personal identity has motivational primacy over collective and social identities (Gaertner, Sedikides, Vevea, & Iuzzini, 2002). Accordingly, although it is likely that there will be variation in personal communication styles depending on the group or interindividual context, people will tend to rely on the style of communication that is most natural for them. Consequently, and in line with McCroskey et al. (1998) and Gaertner et al. (2002), a person's personality traits and personal identity will be expressed to a considerable extent through his or her communication style.

The research here reported is the first and most encompassing lexical study of its kind. The results of this study may help define the area of communication styles. For instance, because it is impossible not to communicate (Watzlawick, Beavin, & Jackson, 1967), first perceptions of a person else are generally based on how he or she communicates. Future researchers may wish to investigate whether the communication styles uncovered in this study are reproduced in other cultures and whether social identity, impression management, or other situational demands change the communication style used. Additionally, future researchers might wish to look at the integration of communication styles into the wider field of personality trait research. Generally, in areas in which communication styles are paramount, such as relationship satisfaction, leadership, interpersonal conflict, and service work, agreement on the content and structure of communication styles may help integrate widely different areas of research. Consequently, a framework to capture communication styles, such as empirically derived in this study, may offer an important input to future studies on communication in interpersonal relationships.

Notes

1. This study was made possible through a grant of the Amsterdam School of Communications Research of the University of Amsterdam. We gratefully acknowledge Van Dale for help with the construction of the "master" list of dictionary terms.

2. It should be noted that a recent reanalysis of the same lexical studies on which the Big Five (and Five-Factor Model) dimensions are based showed that there are actually six instead of five cross-cultural replicable dimensions of personality (Ashton, Lee, & Goldberg, 2004; Ashton, Lee, Perugini, et al., 2004). The model that describes these six dimensions is called the HEXACO model of personality structure (Lee & Ashton, 2004, 2006), in which the acronym HEXACO stands for the following dimensions: honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience.

3. Although Norton (1978, 1983) used *communicator style* to describe his concept, we prefer to refer to *communication style* instead, because the style refers primarily to the content domain, not the subject domain. That is, in the concept of "a communicator's communication style," one may replace *communicator* with *person* to obtain "a person's communication style" or obliterate it altogether to obtain "[one's] communication style," but one cannot legitimately delete *communication*, because it can be interpreted as

referring to a more specific content domain, such as "a communicator's lecturing style" or "a communicator's gazing style." In this case, it is not clear to what style *communicator style* refers.

4. The CSS did not have a specific name in Gudykunst et al. (1996); this is the name provided by Leung and Bond (2001).

5. However, note that these scholars did not question the fundamental advantage of a lexical approach over a theory-guided approach in establishing the main dimensions of personality. See also Ashton and Lee (2005) for an overview of the main advantages of the lexical approach over other approaches and for responses to criticisms levied against the lexical approach.

6. Another important word class that conveys information about communication styles is formed by adverbs. However, most if not all adverbs (e.g., *aggressively*) have a counterpart in the word class formed by adjectives (i.e., *aggressive*). In this lexical study, which is conducted using the Dutch language, adverbs such as *aggressively* (*agressief*) are actually literally the same as their adjective counterparts (*agressief*). Therefore, we decided to stick to the more common adjectives word class.

7. However, the list did contain their synonyms, respectively, *patriarchaal* (patriarchal) and *werkschuw* (work shy).

8. The final adjective and verb lists can be obtained from the first author.

9. Screening took place on the basis of cross-variable (within-person) means and standard deviations. All participants with (a) means less than 2.5 or greater than 3.5 and standard deviations less than 0.90 and (b) standard deviations less than 0.70 were screened for answering tendencies. Participants with long (more than 30) sequences of the same number or highly unusual regular patterns of consecutive numbers were removed. Additionally, to check for random responding, three adjectives and three verbs were presented twice. One respondent, with more than two opposite responses on the six variables and with an absolute score greater than 8 on the sum of the difference between the two scores on each of the six variables, was removed.

10. The main reason for conducting 20 split-half analyses was a practical limitation; because of the huge size of the data matrices, each of these analyses took approximately half an hour on a mainframe computer. Apart from programming the analyses and separate difficult-to-program manual manipulations, the entire analyses took approximately 20 (split-half samples) × 7 (the number of factors investigated, starting from the 2-factor solution) × 0.5 hours = 70 hours. To give an example, an analysis using 1,000 split-half samples would have taken almost 2 (working) years. The mean standard deviation of the congruence coefficients was .039. Although acceptable, future researchers might wish to obtain a greater number of split-half samples to enhance the robustness of the results.

11. For a description of the content of the adjectives and verbs factor scales and their comparability, please contact the first author.

12. Of course, it should be noted that none of the names provided can fully capture the essence and richness of each of the dimensions.

13. Note that the correlation between CSS Indirect Communication and Expressiveness ($r = -.43$, $p < .01$) was higher than the regression coefficient reported in Table 4 and that the reliability of CSS Indirect Communication (.70) was the lowest of all CSS communication scales.

14. Note that the term *expressiveness* does not suggest a transitive relation; some of the adjectives and verbs, such as *to hide oneself* (*mijzelf te verbergen*), do suggest a transitive relation, because the person in question is hiding himself or herself *from someone*.

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